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IS 3078 (1989): Rings for spinning and doubling frames [TXD  
14: Machinery for Fabric Manufacture]



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*Indian Standard*

RINGS FOR SPINNING AND  
DOUBLING FRAMES — SPECIFICATION

( *Fourth Revision* )

**भारतीय मानक**

कताई और डब्लिंग फ्रेमों के रिंग — विशिष्ट

( चौथा पुनरीक्षण )

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110 002

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Price Group 2

## FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards on 31 January 1989, after the draft finalized by the Spinning Preparatory, Spinning and Doubling (Twisting) Machinery Sectional Committee had been approved by the Textile Division Council.

This standard has been revised to incorporate case hardening steel for the manufacture of rings, to amend the sizes of spinning rings covered in the standard to bring them in line with present requirements of the industry, and to modify the hardness requirements of the spinning rings.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

# Indian Standard

## RINGS FOR SPINNING AND DOUBLING FRAMES — SPECIFICATION

### ( Fourth Revision )

#### 1 SCOPE

1.1 This standard prescribes the requirements of rings for spinning, doubling and twisting frames.

1.2 This standard covers both reversible and non-reversible rings for spinning frames which may be fixed to the rings rail directly or by means of holders. It also covers the rings for doubling and twisting frames for use with 'HZ', 'J', 'HZCH' types of ear-shaped travellers.

#### 2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

IS No.	Title
IS 1501 : 1984	Method for Vickers hardness test for metallic materials
IS 1570 (Part 2) : 1979	Schedules for wrought steels: Part 2 Carbon steels (unalloyed steels) (first revision)
IS 1586 : 1968	Methods for Rockwell hardness test (B and C scales) for steel (first revision)
IS 5652 : 1981	Method for Rockwell (A scale) hardness test for hard metals (first revision)

#### 3 MANUFACTURE

3.1 Rings shall be made from through hardening steel such as 105Cr1Mn60 or case hardening steel conforming to 15C8 of IS 1570 (Part 2) : 1979.

#### 3.2 Workmanship and Finish

The rings shall be free from cracks and other manufacturing defects.

#### 4 REQUIREMENTS

##### 4.1 Dimensions

4.1.1 The dimensions of rings for spinning frames shall be in accordance with the requirements of Table 1 read with Fig. 1.

4.1.2 The dimensions of rings for doubling and twisting frames shall be in accordance with requirements of Table 2 read with Fig. 2, 3 and 4.

##### 4.2 Flatness

The rings shall be flat. A feeler gauge of thickness specified below for respective inside diameter shall not pass between the ring and the surface plate when the former is seated freely on the plate:

Inside Diameter	Thickness of Gauge
mm	mm
Up to 41	0.15
42 to 51	0.20
Above 51	0.25

##### 4.3 Ovality (TIR)

Rings shall be concentric. However, limits of ovality shall not exceed the value specified for the respective inside diameter.

Inside Diameter	Limit of Ovality
mm	mm
Up to 41	0.2
42 to 51	0.3
52 to 70	0.4
71 to 90	0.5
Above 90	As agreed between the buyer and the seller

##### 4.4 Hardness

The hardness of rings at flange shall be as given below depending upon the test methods employed:

Hardness		Test Method	Load for Testing
Spinning Rings	Doubling Rings		
750-830 HV	700-770 HV	IS 1501 : 1984	30 kg
82-84 HRA	81-82.8 HRA	IS 5652 : 1981	60 kg
62-65 HRC	60-63 HRC	IS 1586 : 1968	150 kg

#### NOTES

1 In case of dispute between the buyer and the seller, the rings shall be tested according to the method prescribed in IS 1501 : 1984.

2 The corresponding range of hardness of travellers when tested under a load of 1, 2½ or 5 kg depending upon the size of the traveller shall be as given below:

Heavier than No. 10	500-600 HV
No. 10 to 17/0	580-677 HV
Lighter than No. 17/0	Up to 701 HV

3 For rings made of case-hardened steel, depth of case at the places where it comes in contact with the traveller shall be 0.25 mm, Min.

**Table 1 Dimensions of Rings for Spinning Frames**  
( Clause 4.1.1 and Fig. 1 )  
All dimensions in millimetres.

Inside Diameter <i>d</i>	Height <i>h</i> <i>Min</i>	Flange			Fitting Diameter	
		Number	Width, <i>b</i>	Tolerance	<i>d</i> <sub>1</sub>	Tolerance
32	8	1 1½ 2	3.2 3.6 4.0	±0.075	39	0 -0.20
35					42	
38					45	
40					47	
42					49	
45					52	
48					55	0 -0.25
50					57	
51					58	
55					62	
(56)					63	
60					67	
65					72	
70					77	

**NOTES**

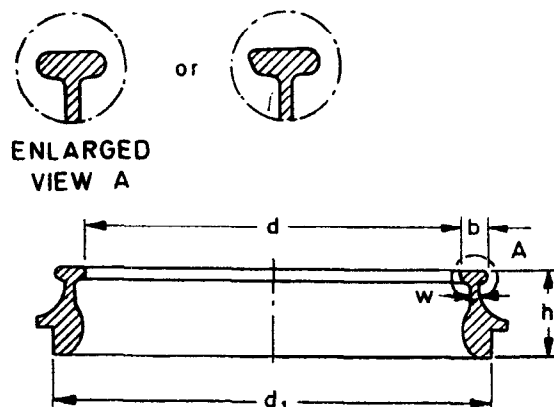
- 1 Size within parenthesis should be avoided as far as possible.  
2 Inside diameter of the ring shall be subject to the following tolerances:

Inside Diameter mm	Tolerance mm
Up to 41	+0.2 0
42 to 51	+0.25 0
52 to 70	+0.3 0
Above 70	+0.4 0

- 3 Fitting diameter specified above are recommendatory only.  
4 Web thickness, *W*, shall be within the following values specified for respective flange numbers. However, a tolerance of ±0.075 mm shall be admissible on the declared value:

Flange No.	Web Thickness, <i>W</i> mm
1	0.7-0.8
1½	0.75-0.85
2	0.8-1.0

- 5 The table covers rings of standard dimensions. In case a buyer orders rings with different dimensions for replacement purposes, the quality characteristics and tolerances on dimensions as specified in the standard shall be applicable to such rings also.



**FIG. 1 TYPICAL NON-REVERSIBLE RING WITHOUT HOLDER**

**Table 2 Dimensions of Rings for Doubling and Twisting Frames**  
( Clause 4.1.2 and Fig. 2, 3 and 4 )

All dimensions in millimetres.

Inside Diameter $d$	Fitting Diameter, $d_1$							Tolerance on $d_1$
	HZCH Height $h$ 6.3, 8.0 or 9.5	HZ Height $h$ 8.0, 9.5, 10.3 or 11.1	HZ Height $h$ 16.7	HZ Height $h$ 25.4	HZ Height $h$ 38.1	J Height $h$ 9.1 or 11.1	J Height $h$ 17.4	
50	63	59.5	—	—	—	57.5	—	
(51)	(64)	(60.5)	—	—	—	(58.5)	—	
55	68	64.5	—	—	—	62.5	—	
(57)	(70)	(66.5)	—	—	—	(64.5)	—	
60	73	69.5	—	—	—	67.5	—	0
65	78	74.5	74.5	—	—	72.5	76	-0.25
70	83	79.5	79.5	—	—	77.5	81	
75	88	84.5	84.5	86	—	82.5	86	
(76)	(89)	(85.5)	(85.5)	(87)	—	(83.5)	(87)	
80	93	89.5	89.5	91	—	87.5	91	
90	103	101	101	101	—	97.5	101	
100	113	111	111	111	—	107.5	111	
110	123	121	121	121	123	117.5	121	0
(115)	(128)	(126)	(126)	(121)	(128)	—	(126)	-0.32
125	138	136	136	136	138	—	136	
(127)	(140)	(138)	(138)	(138)	(140)	—	(138)	
140	153	151	151	151	153	—	151	
150	163	161	161	161	163	—	161	0
(155)	(168)	(166)	(166)	(166)	(168)	—	(166)	-0.40
160	173	171	171	171	173	—	171	
180	193	191	191	191	193	—	191	
200	213	—	211	211	213	—	—	0
225	238	—	236	236	238	—	—	-0.55
250	263	—	261	261	263	—	—	

#### NOTES

1 Sizes within parentheses should be avoided as far as possible.

2 Inside diameter is nominal dimension.

3 Fitting diameters specified above are recommendatory only.

4 Tolerance on height shall be  $\pm 0.1$  mm.

5 The table covers rings of standard dimensions. In case a buyer orders rings with different dimensions for replacement purposes, the quality characteristics and tolerances on dimensions as specified in the standard shall be applicable to such rings also.



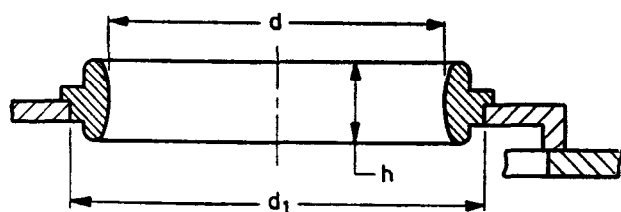


FIG. 2 TYPICAL RING FOR USE IN CONJUNCTION WITH HZ TYPE EAR-SHAPED TRAVELLER

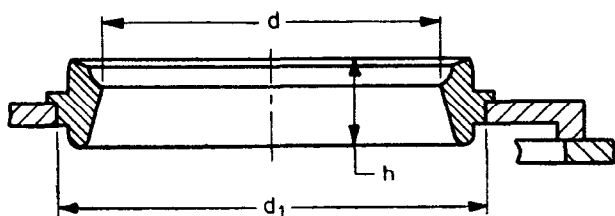


FIG. 3 TYPICAL RING FOR USE IN CONJUNCTION WITH J TYPE EAR-SHAPED TRAVELLER

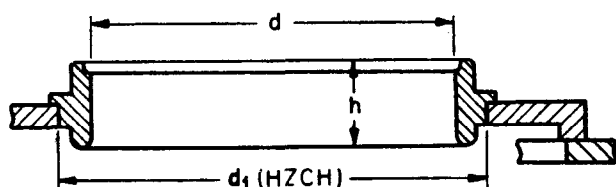


FIG. 4 TYPICAL RING FOR USE IN CONJUNCTION WITH HZCH TYPE EAR-SHAPED TRAVELLER

#### 4.5 Profile

The profile of the rings shall be measured under a profile projector and a variation to  $\pm 5$  percent from the manufacturer's standard profile shall be permissible.

#### 5 PACKING

The rings shall be coated with a suitable anti-rust agent and shall be suitably packed to prevent corrosion and damage.

#### 6 MARKING

6.1 All the containers of rings shall be marked with the following:

- Inside diameter of the rings;
- Flange number; and
- Manufacturer's name, initials or trade-mark, if any.

6.1.1 Rings may also be marked with the Standard Mark.

#### 7 SAMPLING

##### 7.1 Lot

All the rings of the same dimensions manufactured from same material under essentially similar conditions and delivered to a buyer against one despatch note shall constitute a lot.

7.2 The conformity of a lot to the requirements of this standard shall be determined on the basis of tests carried out on the rings selected from it (see 7.6).

7.3 Unless otherwise agreed to between the buyer and the seller, the number of rings to be selected at random from the lot shall be in accordance with col 2 of Table 3. The rings shall be selected from at least 10 percent of the packages, and equal number of rings, as far as possible, being drawn at random from each package.

7.4 All the rings selected as in 7.3 shall be inspected for (a) workmanship and finish, (b) dimensions, (c) flatness of ring, (d) ovality, and (e) hardness.

7.5 The number of rings to be tested for profile shall be according to col 4 of Table 3.

##### 7.6 Criteria for Conformity

The lot shall be considered to be in conformity with the requirements of this standard if the following conditions are satisfied:

- The number of rings failing to satisfy any one or more of the characteristics mentioned in 7.4 does not exceed the corresponding number given in col 3 of Table 3, and
- All rings satisfy the requirement mentioned in 7.5.

Table 3 Sample Size and Criteria for Conformity  
(Clauses 7.3, 7.5 and 7.6)

No. of Rings in the Lot	Sample Size	Permissible No. of Non-conforming Rings	Number of Rings to be Tested for Profile
(1)	(2)	(3)	(4)
Up to 100	8	0	1
101 to 300	13	1	1
301 to 500	20	1	2
501 to 1 000	32	2	3
1 001 to 3 000	50	3	3
3 001 and above	80	5	5

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#### BUREAU OF INDIAN STANDARDS

##### Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002  
Telephones: 323 01 31, 323 33 75, 323 94 02

Telegrams: Manaksanstha  
(Common to all offices)

##### Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg  
NEW DELHI 110002

Telephone  
323 76 17, 323 38 41

Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola  
CALCUTTA 700054

{ 337 84 99, 337 85 61  
337 86 26, 337 91 20

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022

{ 60 38 43  
60 20 25

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113

{ 235 02 16, 235 04 42  
235 15 19, 235 23 15

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)  
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